Remarks/Arguments

Claims 21-43 are pending in the application. Claim 21 and claim 23 are currently amended. Claims 31-40 were withdrawn from consideration as being drawn to a non-elected invention. Claims 41-43 are new.

Claims 21-30 were rejected under 35 U.S.C. 103(a) as being unpatentable by Sahm (U.S. Pat. No. 5,404,661) in view of Staub (U.S. 6,236,916). This rejection is respectfully traversed for the following reasons.

Sahm discloses a mining shovel equipped with a GPS receiver 202 to provide relevant shovel and **bucket location information**, among other things. (Col. 18, lines 26-28.) The slope of a work surface is referred to as the "bench." (Col. 3, lines 63-64.) "Surveys of the bench are made and either the mining shovel or other support machines, such as track-type tractors or wheel loaders, are used to groom the bench to the proper slope and elevation." (Col. 4, lines 2-6.) The elevation of the ground directly beneath the machine is compared to the desired bench height. (Col. 11, lines 53-56.) In general, the operator of the mining shovel can use survey information to remove material selectively to achieve a desired bench or slope of the terrain.

Sahm calculates the location and orientation of the car body 106 and the location of the bucket. (Col. 9, lines 27-30.) A GPS receiver 202 provides three dimensional coordinates to determine the plane of rotation of the car body. (Col. 9, lines 43-60.) "The equation of the plane upon which the car body 106 rotates is calculated, and from this equation, the slope, or roll and pitch, can be displayed using whatever frame of reference is desired." (Col. 9, lines 35-39.) The plane of rotation of the car body (e.g., associated with the slope, roll and pitch) can be used to estimate the **location and orientation of the work implement** (e.g., bucket 108). (See, Col. 2, lines 19-25; Col. 14, lines 49-52.)

Staub discloses an autoguidance system for an agricultural machine that senses roll of the agricultural machine and corrects for lateral error in position of the machine. (Col. 4, lines 24-26; Col. 4, lines 47-54.) The roll appears to be defined as an angle θ of a lateral slope with respect to the direction of travel of the vehicle. (Col. 4, lines 32-37 and FIG. 4.) Staub tersely states "the autoguidance control module 212 then compensates for position determination error due to the roll, as explained in more detail below." (Col. 4, lines 28-31.) Staub does not disclose a **maximum slope**, but rather a roll θ of "10 degrees" and a "roll of significant magnitude." (Col. 4, line 47; Col. 4, line 57.)

The Examiner's interpretation of the Staub reference is strained. Staub cannot teach "guiding of a vehicle according to a maximum slope" (Office Action at page 3), because Staub fails to disclose any maximum slope whatsoever. The slope of 10 degrees is just an arbitrary slope and not a maximum because we have no indication that it is lesser or greater

than any other slope. Similarly, "a roll of significant magnitude" merely means that the roll is of a material quantity or angle, as opposed to an insignificant or relatively flat terrain. There is no indication that the "roll of significant magnitude" is greater than any other "roll of significant magnitude."

Even if it were possible to combine Staub and Sahm, the alleged combination of Staub and Sahm would not meet claim 1. Instead, the alleged combination would comprise the Sahm mining shovel that uses roll, pitch, and tilt to define a plane of rotation of the car body, and ultimately a location and orientation of an implement (e.g., shovel), and that uses the Staub's compensation for roll data in lateral position error based on a roll angle (e.g., roll angle θ or roll of significant magnitude). Claim 1 now recites "guiding the **vehicle steering** in a direction of travel", as opposed to guiding a bucket or an implement as in Sahm.

The alleged combination also lacks the "maximum slope." Although Sahm discloses the use of roll and pitch data to determine the plane of rotation of the car body 106 of the mining shovel (Col. 9, lines 43-60), Sahm does not disclose, teach or suggest the use of the aspect (i.e., the direction of **maximum slope**) to determine estimated roll data and pitch data for a particular location or cell as called for in claim 1. Staub does not make up for the foregoing deficiency in Sahm. Staub lacks the "maximum slope" as previously described above. Further, the Examiner acknowledged that "Staub does not specifically disclose that the vehicle is guided based upon an aspect which represents a direction of **maximum slope**..." (Office Action at page 2.)

There are additional differences between the claim 1 and the alleged combination. In contrast to the alleged combination, claim 1 now recites "an aspect representing a direction of maximum slope of ground **with respect to a reference point for each cell traversed by the vehicle** corresponding to the particular location and used to determine the respective estimated roll data and pitch data for the particular location." Nothing in Sahm, nor Staub, alone or in combination, teaches or suggests an aspect that represents a direction of a maximum slope of the ground with respect to a reference point for each cell traversed by a vehicle. Moreover, Staub appears to be limited solely to the consideration of lateral slope and lateral error compensation, without regard to "longitudinal slope" as called for in claim 1.

For the foregoing reasons, Applicants respectfully request a withdrawal of the rejection of claim 21. Because claims 22-30 and 41-43 depend upon claim 21, claims 22-30 and 41-43 are patentable for at least similar reasons to claim 21.

New claim 41 was added to clarify the direction of the aspect may comprise a radial direction, as illustrated in FIG. 5A and FIG. 5B. New claims 42 and 43 recite additional features related to the equations of claims 28 and 30, respectively. The new claims were not

added to overcome any particular cited prior art reference or references and are believed to be patentable for the reasons previously explained herein.

In conclusion, it is believed that this application is in condition for allowance, and such allowance is respectfully requested.

Any fees or charges due as a result of filing of the present paper may be charged against Deposit Account 04-0525.

Respectfully,

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